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SCCSID = canal_grid_loc.man v1.2 08/06/03


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-------------------------------------------------------------------------------
| D R A F T    D R A F T    D R A F T    D R A F T    D R A F T    D R A F T    D R A F T |
-------------------------------------------------------------------------------
|                   SOUTH FLORIDA WATER MANAGEMENT MODEL V5.0                  |
|                             INPUT MAN PAGE FOR                               |
|                                                                             |
|            canal_grid_loc.dat (previously known as canal22*)                |
|                                                                             |
|    canal_grid_loc.dat == defines grid cell location(s) of canals to be simulated. |
|                          Also, canals which are modeled in a special (non-generic) |
|                          way are listed here as well as relevant special input: |
|                                                                             |
|                          - Canals with unique surface water interaction      |
|                            coefficients.                                    |
|                          - Canals for which head drop is computed on a daily |
|                            basis.                                           |
|                                                                             |
|                          assigned unit number 23 in ALTWMM                   |
|                          read in subroutine:                                |
|                             gen_model_def_param.F                           |
-------------------------------------------------------------------------------


COLS.    VAR.NAME                FORMAT          DESCRIPTION
-------------------------------------------------------------------------------
1. CANAL NAME & NUMBER OF REACHES: (1 record per canal)
   (A5,I3)
-------------------------------------------------------------------------------
@ NOTE: N is a canal counter.

1-5     CNM(N)                  A5              Character string identification of canal.
                                                Canal name and order should match that
                                                of the canal_struc_specs.dat input file.


6-8     NODCR(N)                I3              Number of grid cells through which canal
                                                passes.


-------------------------------------------------------------------------------
2. CANAL LOCATION DEFINITION: (1 or more records per canal)
   (5X,11(2I3,I2,1X))
-------------------------------------------------------------------------------
@ NOTE: A maximum of 11 grid cell locations can be specified in each line. Input as many
        lines as needed to define the total number of reaches. IC is a grid cell counter.
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```
1-5       BLANK                      5X

@ NOTE: The format below is repeated in each line for up to 11 grid cell definitions per
        line.

6-8       XCN(N,IC)                  I3                    Column location of cell where canal
                                                           segment is located.

9-11      YCN(N,IC)                  I3                    Row location of cell where canal segment
                                                           is located.

12-13     ICL(N,IC)                  I2                    Orientation of canal segment at grid
                                                           location.
                                                           If 1: Canal is oriented east-west at grid
                                                               location.
                                                             2: Canal is oriented north-south at
                                                               grid location.
                                                             3: Canal is oriented diagonally at grid
                                                               location.
                                                           The indices for orientation are used to
                                                           calculate the length of canal segment
                                                           within each grid cell. Canal segments are
                                                           assumed to be centered in the grid cells.

14        BLANK                      1X

@ NOTE: A record with 'NOCNL' as canal name needs to be defined after the definition of
        all other canals.

--------------------------------------------------------------------------------
3. SPECIAL CANAL NAMES: (1 or more records)
   FORMAT(I3,2X,17(A5,1X),3(/5X,17(A5,1X)))
--------------------------------------------------------------------------------
1-3       NO_CANL_NAMES_SPEC         I3                    Number of canals with special/unique code.

4-5       BLANK                      2X

@ NOTE: A maximum of 17 canal names can be defined in the first record. The arrays below
        are defined and the read format is repeated for I=1,min(NO_CANL_NAMES_SPEC,17).

6-10      CANL_NAMES_SPEC(I)         A5                    Character string identification of canal
                                                           with special/unique code.
                                                           Needs to match canal name in
                                                           canal_struc_specs.dat.

11-11     BLANK                      1X
```

@ NOTE: If there are more than 17 canals with special (NO_CANL_NAMES_SPEC>17),
        the format of the following records is slightly different (The first 5 columns
        are blank, 5X).

@ NOTE: The location (index) of a canal name in this array is hardcoded in the SFWMM with
        the purpose of providing some flexibility in naming canals. Therefore, extreme
        care should be exercised to keep the canal name at its correct location (i.e. to
        associate the right canal name with the correct index).

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4. NUMBER OF CANALS WITH UNIQUE SURFACE WATER INTERACTION COEFFICIENTS: (1 record total)
   FREE FORMAT

        NO_CANL_SW_INT   FREE   Number of canals with surface water
                                                        interaction unique to canal.

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5. CANALS WITH UNIQUE SURFACE WATER INTERACTION COEFFICIENTS:
   (NO_CANL_SW_INT records total)
   FREE FORMAT

@ NOTE: NC is a counter of canals with unique surface interaction coefficients.
        NC=1,NO_CANL_SW_INT

        CANL_NAMES_SW_INT   FREE   Character string identification of canal
                                                        with different surface water interaction
                                                        coefficients.
                                                        Needs to match canal name in
                                                        canal_struc_specs.dat.

        OFMC_CANL(NC,1)   FREE   A coefficient for overland flow into canal
                                                        within a grid cell.

        OFMC_CANL(NC,2)   FREE   b coefficient for overland flow into canal
                                                        within a grid cell.

        OFMC_CANL(NC,3)   FREE   A coefficient for overland flow out of
                                                        canal within a grid cell.

        OFMC_CANL(NC,4)   FREE   b coefficient for overland flow out of
                                                        canal within a grid cell.

@ NOTE: Coefficients A and b are used for defining Manning's n for grid cell to canal
        surface water interaction: n* = A*H^b, where H=average ponded depth in grid cell.

        DETENC_CANL(NC)   FREE   Grid cell ponding depth (ft) below which
                                                        no surface water-canal interaction is
                                                        allowed to occur.

@ NOTE: The A and b coefficients and detention depth, defined in the lecdef input file as
        function of landuse, are used for canals not defined in this section.

----
6. CANALS FOR WHICH HEAD DROP IS COMPUTED DAILY: (1 or more records)
   FORMAT(A5,2x,2f7.2,4i5,7F5.1)

@ NOTE: KK is a counter of canals for which head drop is computed daily.

1-5   CANAL_NAME_DVSLOPE(KK)   A5   Character string identification of canal
                                                 for which head drop is computed daily.
                                                 Needs to match canal name in
                                                 canal_struc_specs.dat.

6-7   BLANK   2X

8-14   RMEAN_CNL_BOT_ELEV(KK)   F7.2   Mean canal bottom elevation (ft NGVD).

15-21   FLOW_RESISTVTY_COEF(KK) F7.2   Manning's n coefficient for canal flow.

22-26   IXUPSLOPE(KK)   I5   Column location of cell where upstreaam
                                                 canal segment is located.

27-31   IYUPSLOPE(KK)   I5   Row location of cell where upstreaam
                                                 canal segment is located.

32-36   IXDNSLOPE(KK)   I5   Column location of cell where downstream
                                                 canal segment is located.

37-41   IYDNSLOPE(KK)   I5   Row location of cell where downstreaam
                                                 canal segment is located.

@ NOTE: -901 in any of these fields means that data is not applicable for the calculation
        of head drop (or slope) of water surface along canal. In this case, head drop
        along canal would be strictly a function of the canal inflows and outflows and
        the canal's resistance to flow (assuming a linear slope and a rectangular canal
        cross-section). If actual data is input then the head drop along the canal is
        assumed to be the same as the difference in cell stage at the upstream and
        downstream ends of canal times a factor (HDROP_FACT(KK) defined below).

42-46   RF_DRAWDWN_DPH0(1,ll)   F5.1   Dry season flood control drawdown level
         for ll=1   (ft NGVD) for heavier rainfall conditions
                                                 (4 inches in 2 weeks to 6 inches in 2
                                                 weeks) during normal operations.

47-51   RF_DRAWDN_DPH0(1,ll)   F5.1   Wet season flood control drawdown level
         for ll=2   (ft NGVD) for heavier rainfall conditions

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                                          (4 inches in 2 weeks to 6 inches in 2 )
                                          weeks during normal operations.

52-56    RF_DRAWDWN_DPH0(2,ll)   F5.1     Dry season flood control drawdown level
         for ll=1                         (ft NGVD)for even heavier rainfall
                                          conditions (> 6 inches in 2 weeks) during
                                          normal operations.


57-61    RF_DRAWDWN_DPH0(2,ll)   F5.1     Wet season flood control drawdown level
         for ll=2                         (ft NGVD)for even heavier rainfall
                                          conditions (> 6 inches in 2 weeks) during
                                          normal operations.


62-66    HDROP_FACT(KK)          F5.1     Multiplier for canal head drop in terms
                                          of head drop defined by the difference
                                          in grid cell stages at upstream and
                                          downstream ends of canal (e.g. 1.0 means
                                          head drop in canal is the same as the drop
                                          in grid cell stages between the upstream
                                          and downstream ends of canal).


67-71    HDROP_MAX(KK)           F5.1     Maximum allowable simulated head drop in
                                          canal, which is comparable to the maximum
                                          experienced in the field.


72-76    HDROP_MIN(KK)           F5.1     Minimum allowable simulated head drop in
                                          canal, which is comparable to the minimum
                                          experienced in the field.

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END OF DESCRIPTION FOR INPUT FILE "canal_grid_loc.man"
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